Supply-Chain Council Award for Excellence in Supply Chain Operations

F/A-18E/F Integrated Readiness Support Teaming (FIRST)

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EXECUTIVE SUMMARY

Naval Aviation and carrier operations are essential to meeting the President's National Security Objectives. Carrier operations allow the United States to project power anywhere in the world without diplomatic clearances and fly over rights. Naval Air Systems Command (NAVAIR) and the Naval Inventory Control Point - Philadelphia (NAVICP-P) are the two primary Naval Organizations responsible for supporting Naval Aviation and more specifically, carrier operations. NAVAIR, led by Vice Admiral Massenburg, has a team of more than 27,000 program managers, depot artisans, engineers, acquisition experts, test pilots and logisticians that provide cost-wise readiness and dominant maritime combat power. NAVICP, led by Rear Admiral Harnitchek, has a team of more 1,500 acquisition experts, logisticians and technicians whose mission is to provide program and supply support for the weapons systems that keep our Naval Forces mission ready.

The F/A-18 Hornet has remained the carrier's workhorse for Naval Aviation for several decades. The Hornet's ability to operate as a fighter and bomber with unparalleled maintainability and reliability has been unprecedented. The F/A-18E/F Super Hornet has continued this outstanding tradition with its ability to fly further, faster with an increased delivery and return payload. The challenge Naval Aviation faced was how to meet the operational support needs of the Super Hornet at a reduced cost to the taxpayer in an environment in which defense procurement budgets, force structures, and the logistic footprints were being reduced.

The Department of Defense infrastructure and logistic processes that were built to sustain the Cold War could no longer efficiently and effectively meet the operational support needs and budgetary constraints of the Super Hornet. The solution was to develop an innovative way for the public and private sector to partner in providing the required operational support within the current logistics structure. The F/A-18E/F Integrated Readiness Support Teaming (FIRST) program met that need by delineating specific performance goals, providing financial incentives for attaining these goals, ensuring that responsibilities were clearly assigned, and facilitating the overall life-cycle management of Super Hornet reliability, supportability, and total ownership costs.

FIRST is an innovative logistics approach that increases the efficiency and effectiveness of the Super Hornet by uniting the responsiveness of industry, with the expertise and capacity of the Navy's organic support activities. This truly transformational performance based logistics approach was jointly crafted by a Government/Industry team to provide Naval Aviation with increased mission performance, without adding burden to fleet personnel by procuring outcome based logistical support vice large inventories.

The following operational statistics are a dramatic example of the effectiveness of FIRST on Naval Aviation and national security. During combat missions in support of Operation Iraqi Freedom, VFA-115 expended 350,000 pounds of ordnance with an success rate of over 98%, averaged over 55 flight-hours per day with a sortie completion rate 97.5% throughout the campaign, passed over 2.3 million pounds of fuel generating

more than 430 extra combat sorties, and delivered their first ever quantity-four JDAM release in support of the "Shock and Awe" campaign. The capability for a single aircraft to deliver 8,000 pounds of ordnance to four targets allows two Super Hornets to perform what in the past would have taken eight aircraft to accomplish. FIRST is the supply chain vehicle that allows the Super Hornet to perform so flawlessly.

These statistics clearly demonstrate that FIRST directly supports the tenants of the **"Award for Excellence in Supply Chain Operations."** Government utilizes the financial incentives in FIRST to increase the reliability, flexibility, and responsiveness of the supply chain. Industry utilizes the increased authority in FIRST to exploit commercial best practices performing several functions previously executed by the government. The ultimate winners are the warfighters and taxpayers since FIRST provides them with an agile, streamlined support system that has significantly reduced logistics cycle time and multiple levels of spare parts inventories.

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SECTION 1: GENERAL INFORMATION AND PROJECT COMPLEXITY:

1-1). Name of the Submitting Organization (corporate):

Naval Air Systems Command, Program Executive Officer Tactical Aircraft Programs

1-2). Name of the Responding Organization (site/function):

- F/A-18 Strike Fighter Program Office, Patuxent River, MD
- F/A-18 Integrated Weapons System Team, Naval Inventory Control Point-Philadelphia, PA

1-3). Brief Mission Description:

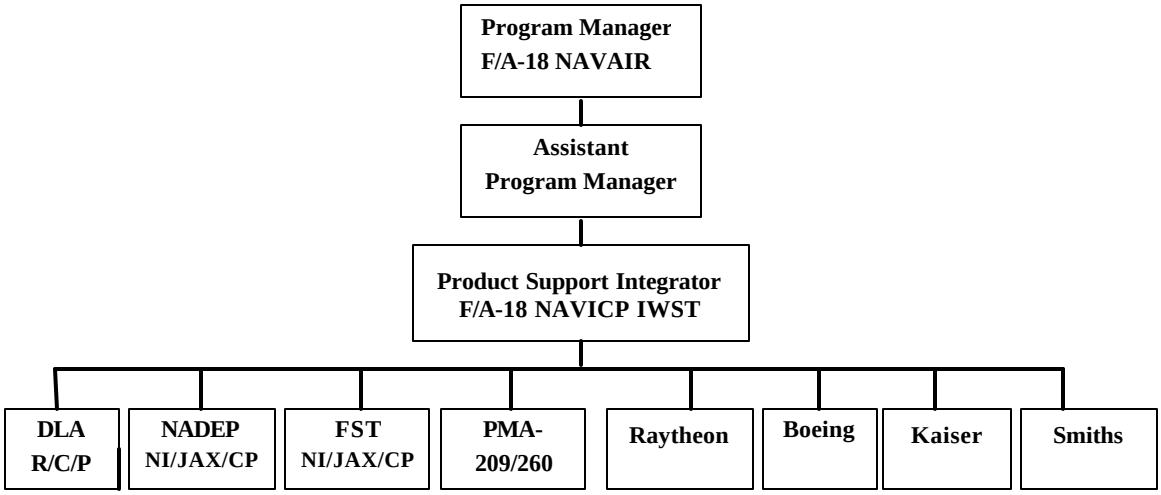
The overall objective of FIRST is to meet and exceed fleet readiness expectations and requirements while reducing Total Ownership Cost through efficient and pro-active supply chain management, reliability and supportability improvements, integrated information systems development and deployment, and ground-breaking performance based logistics. The central focus of FIRST is on areas impacting aircraft support. Some of those areas include:

- Engineering
- Information Technology
- Integrated Logistics Support
- Support Equipment
- Supply Chain Services
- Technical Publications
- Training
- Cost

In May 2003, NAVAIR awarded a one year contract (with two option years) to provide the other logistics support elements beyond spares and repairs management. Combined with NAVICP exercising the third year of their contract in October 2002, FIRST now provides total logistics support for Super Hornet unique components. To ensure that these two FIRST contracts were optimized to provide the best support to the warfighter, NAVAIR and NAVICP organized into a "Virtual Program Office." This virtual program office allows all members of the team to maximize their focus on the requirements of the warfighter. It allows NAVAIR as the Program Manager to implement the Under Secretary of Defense 7 March 2003 guidance by taking complete responsibility for all activities associated with the acquisition, development, production, fielding, sustainment, and disposal of the Super Hornet throughout its life cycle. It allows the program manager as the life cycle manager to be fully accountable and responsible for system acquisition and follow-on sustainment. NAVICP has been designated as the Super Hornet Product Support Integrator (PSI). The PSI has several significant responsibilities that impact Super Hornet readiness and warfighter daily support. Some of the PSI roles and responsibilities are:

- Acts as Program Manager's agent for implementing his/her sustainment vision and objectives.
- Coordinates organic and private sector logistics support to maximize readiness and availability at the lowest total cost.
- Manages all support contracts, Memorandum of Understandings and Memorandums of Agreements to meet the metrics specified in the Performance Based Agreement (PBA) with the warfighter.

FIRST "Virtual Program Office" Organization

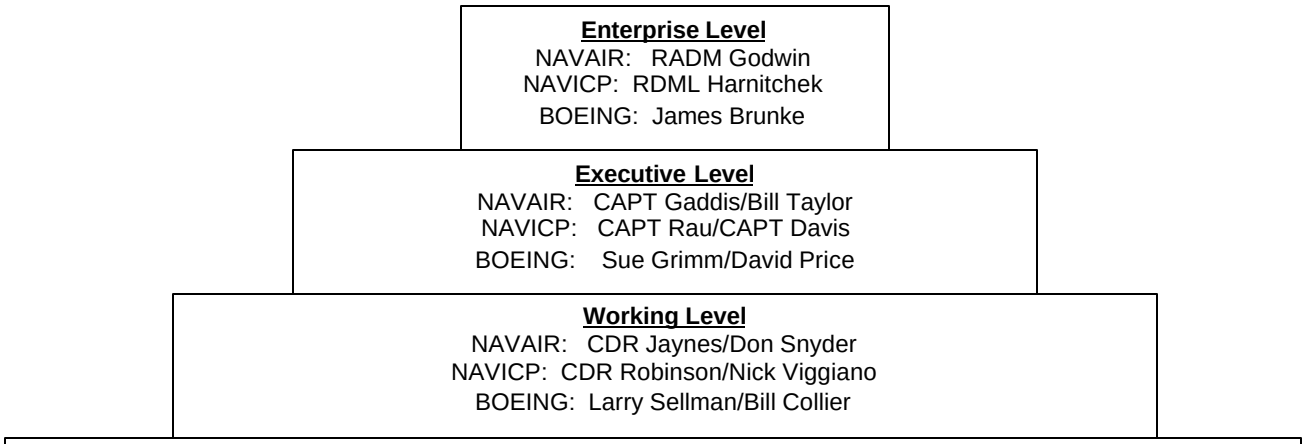


NAVAIR, NAVICP and Boeing are diligently working to expand the FIRST contract to cover Super Hornet road-map and F/A-18A-D sub-systems and components by next contract award planned for January 2006. The decision to add individual sub-systems and components will be made on a case-by-case basis. All additions will require a positive business case analysis (BCA).

The award of a performance based logistics (PBL) contract of this breadth and depth is extremely complex and is expected to take two years. This FIRST virtual program office will utilize a four tiered hierarchal organization consisting of five core teams to accomplish the thousands of acquisition, engineering, and logistics tasks necessary for a long-term contract award in January 2006. This hierarchal organization allows the virtual program office to systematically uncover and resolve the numerous policy and implementation challenges that will undoubtedly reveal themselves over the next two years. The five core teams are:

- Team I: Business Case Analysis Development Team
- Team II: Technical Subsystems and Components Review Team
- Team III: Availability and Effectiveness Metrics Development Team
- Team IV: Long Term Contract Award Team
- Team V: Duplication and Inefficiency Reduction Team

FIRST "Hierarchal" Organization and Core Teams



Team Level					
	TEAM I: Joint BCA	TEAM II: Components	TEAM III: Availability Metrics	TEAM IV: Long Term PBL	TEAM V: Efficiency
NAVAIR Leads					
NAVICP Leads					
BOEING Leads					

1-4). Category of Submission:

Award for Excellence in Supply Chain Operations.

1-5). Brief Description of the Supply Chain and Processes the Submission Spans:

FIRST has significantly reengineered the Super Hornet Supply Chain. As part of this reengineering initiative, Boeing provides warehousing services for wholesale assets and transportation services for wholesale and retail assets. Boeing asset managers are responsible for managing inventories, forecasting demands, and procuring spares. Significant innovative information technology solutions have been created and interfaced with customer and supplier data bases so that decision makers are provided accurate and timely data in order to make informed decisions. For example, Boeing asset managers were aware of pending part requirements and were able to pre-position assets in advance of incoming requisitions, thereby filling the requisitions in an expeditious manner. Boeing has been able to attain a total turnaround time of less than 60 days, including time spent waiting for repair material, by using commercial transportation, pre-authorization

of supplier repairs, and providing shipping information via a secure web interface. Boeing processes have cut packaging time to less than one day.

Relationships with suppliers have been established so that they receive advance notification of incoming repair requirements and are authorized to begin work as soon as the asset arrives. Improvements to procurement information systems have also increased the efficiencies related to processing supplier invoices by automating the process. Use of a secure web interface to provide shipping instructions has improved the responsiveness of the support system to expedite requirements while reducing administrative load associated with processing changing requirements. When a Supplier is ready to ship an asset, they pull the shipping instructions from a secure web interface that allows instructions to be modified by Boeing asset managers. In this way, stock that was originally planned for shipment to a warehouse can be redirected to meet customer expedite requirements without the requirement to process procurement order modifications.

Additionally, Boeing established Commercial Services Agreements with all three of Naval Aviation Depots for repair of Super Hornet components. These Commercial Service Agreements allowed Boeing to significantly improve the depot supply chain while allowing the depot artisans to continue to utilize their unique skills to make repairs. FIRST allows the Navy to remain compliant with core law.

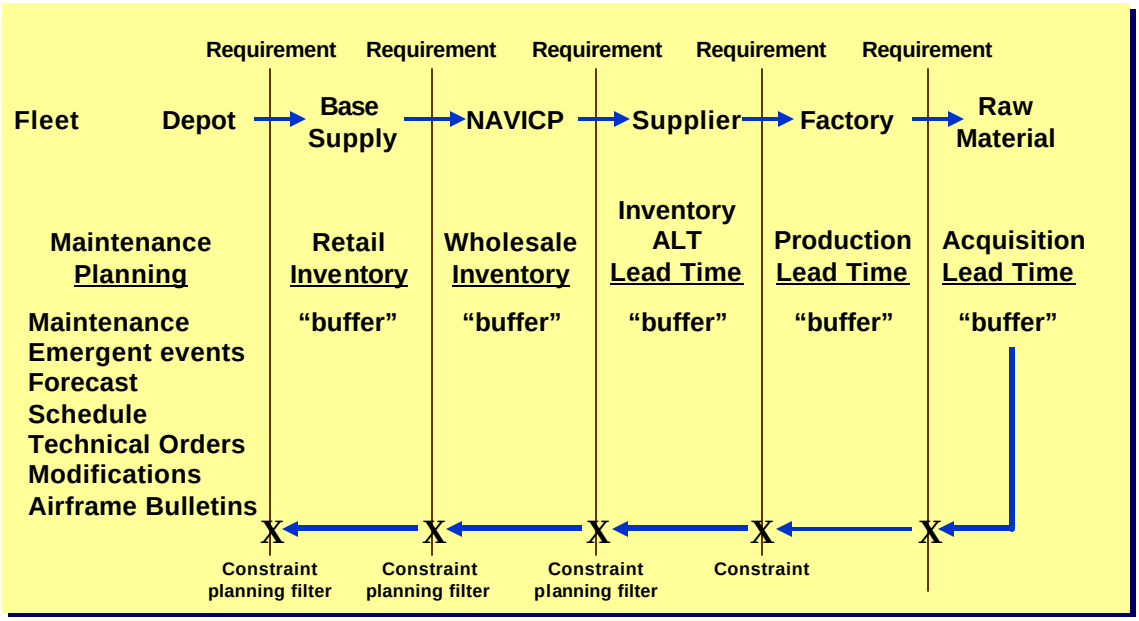
FIRST is chartered with identifying opportunities for supportability improvements and developing initiatives to capture cost avoidance associated with these opportunities. Boeing recoups investments by avoiding future repairs and the Navy realizes cost avoidances through the reduction in cost per flight hour in future contracts. The Navy has granted Boeing FIRST Class I Engineering Change Proposal Authority. This process allows Boeing to reduce the average engineering change proposal cycle time from 242 days to16 days.

Each of these supply chain improvements has enabled Boeing and the Navy to establish a dynamic, highly responsive support solution for the warfighter. FIRST provides Boeing with the flexibility to achieve program requirements while ensuring that the Fleet's expectations are met. Industry and the Navy have jointly worked to define measurement criteria for evaluating specific high-level performance guarantees. The FIRST Program represents an affordable approach to meeting Super Hornet support requirements without sacrificing combat capability.

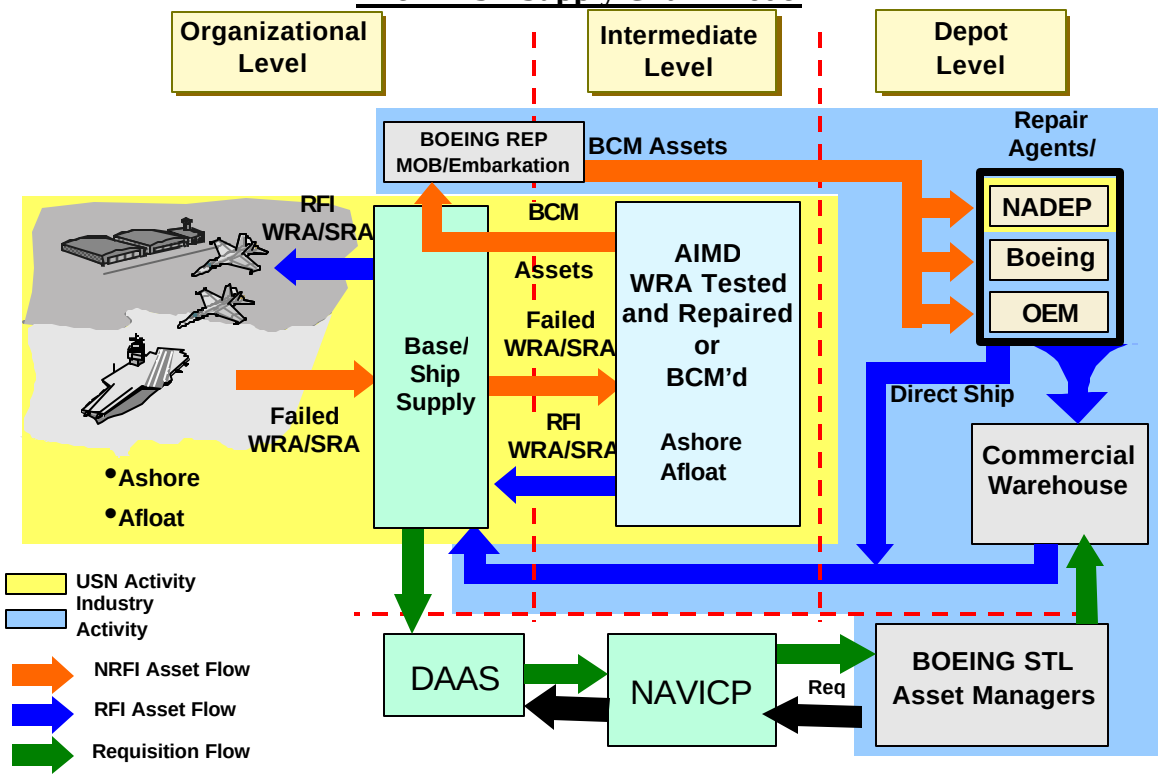
The following diagrams describe the traditional Super Hornet supply chain and the FIRST Super Hornet supply chain. The FIRST supply chain significantly reduces:

- Sequential "Stove-piped" material planning efforts
- Organizational boundaries constraints (i.e. management philosophy, information systems, policy, directives, etc.)
- Resource buffers to manage upstream/downstream variability

The Traditional Supply Chain Model



The FIRST Supply Chain Model



1-6). Supply Chain External Partner Organizations by Number and Function:

- Office of Secretary of Defense (OSD) (1)
- Assistant Secretary of the Navy (ASN) (3)
- Naval Inventory Control Point – Philadelphia (NAVICP-P)
- Defense Supply Center Richmond (DSCR) (4)
- Defense Contract Management Agency, Boeing St. Louis (DCMA) (5)
- The Boeing Company (15)
- Naval Aviation Intermediate Maintenance Activity Lemoore (3)

1-7). Internal Partners and Organizations by Number and Function:

- NADEP North Island (NI) (Jim Chudy, Maint. Planning, 619-545-3852; Ken Ranes, Depot, 619-545-2469)
- NADEP Jacksonville (JAX) (Tony Davis, Depot, 904-542-4423)
- NADEP Cherry Point (CHPT) (Jerry Cox, Depot, 252-464-8585)
- NAVAIR 3.0 (Don Snyder/Henry Rambo, NAVAIR, 301-757-2261/301-757-7654)
- NAVAIR 6.0 (Ray Cole, NAVAIR, 301-757-8410)
- NAVAIR 4.0 (Mike Poliszuk, NAVAIR, 301-757-7639)
- Fleet Support Team (FST) (Cecil Boyd, North Island, 619-545-3743)
- NAES Lakehurst (Mariam Corrigan, Support Equipment, 732-323-2310)
- NATEC (Franklin Lipp, Technical Pubs, 619-545-4755)

1-8). Point of Contact Information for Each Supply Chain Partner:

- CDR Joyce Robinson, NAVICP-P, 700 Robbins Avenue, Philadelphia, PA 19111-5098, joyce.robinson@navy.mil, 215-697-5760, DSN: 442-5760
- RDML Lyden, DSCR, 8000 Jefferson Davis Hwy, Richmond, VA 23297 michael.lyden@dla.mil, 804-279-3801, DSN: 695
- Mr. Larry Sellman, The Boeing Company, P.O. Box 516, St. Louis, MO 63166-0516, larry.j.sellman@boeing.com, 314-233-5933
- CAPT James Woolway, Naval Aviation Depot North Island, San Diego, CA, james.woolway@navy.mil, 619-545-2200, DSN: 735-2200
- CAPT David Beck, Naval Aviation Depot Naval Air Station Jacksonville, Jacksonville, FL 32212-0016, david.beck@navy.mil
- COL J. Gumbel, Naval Aviation Depot Cherry Point, Havelock, NC, 252-464-7000, DSN: 451
- Mrs. Mariam Corrigan, Naval Air Engineering Station Lakehurst, Route 547, Lakehurst, NJ, 08733, Mariam.corrigan@navy.mil, 732-323-2130, DSN: 624
- CAPT. Vincient Shorts, CSFWP Naval Air Station Lemoore, 001K Street, Lemoore, CA 93245, vincent.shorts@navy.mil
- Mr. Cecil Boyd, Naval Aviation Depot North Island, San Diego, CA, cecil.boyd@navy.mil, 619-545-3743

SECTION 2: IMPLEMENTATION

2-1). Explain why the supply chain initiative was undertaken and how it was selected:

In 1996, the Office of Secretary of Defense (OSD) was seeking ways to apply best commercial practices to logistics support. The Assistant Secretary of the Navy for Research, Development and Acquisition saw in the Super Hornet an opportunity to follow OSD's guidance and attempt something fundamentally new in logistics support. He tasked the NAVAIR to commission Boeing to develop a series of studies, which eventually formed the basis of the FIRST program. These studies and subsequent discussions concluded that the Navy could cut costs relative to baseline costs under a traditional support approach by engaging Boeing in a close partnership that drew on both Navy and Boeing logistics capabilities, gave Boeing better information on the Navy's activities and priorities, and gave Boeing more freedom to act on this information to the mutual benefit of buyer and seller. FIRST is the product of a four-year effort by Boeing and the Navy to design a governance structure in which to seek mutual benefits.

In 1998, NAVAIR created a team to develop a Navy/Boeing teaming approach. This team sought to put Boeing "in the position of making the best long term decisions for the lowest total cost of the platform." Over one hundred people met to develop a program concept and baseline. Several meetings followed to develop a business plan and to refine the framework, delineate roles and responsibilities, and create detailed process maps. The FIRST teaming approach included an integrated set of IPTs responsible for different parts of the development. The central team continually challenged these IPTs to be more aggressive, moving wherever possible to give Boeing as much authority, responsibility, and accountability as possible, subject to a constraint that depot maintenance work would remain organic.

Ultimately this approach led to holding Boeing accountable for achieving the Navy's basic logistics goals, as defined by its standard metrics. Much of the success can be attributed to the delineation of precise roles and responsibilities that explain how the Navy and Boeing will work together. For example:

- Boeing and the Navy operate as a single management team for the FIRST program. Personnel from Boeing and the Navy staff a hierarchical set of integrated process teams (IPTs) relevant to a wide range of Super Hornet support activities
- The Navy gives Boeing planning data on its future operations
- The Navy provides organizational and intermediate maintenance
- Boeing partners with the Naval Aviation Depots (NADEPs) for depot-level maintenance
- Boeing has authority to make specified engineering changes, with Navy concurrence
- The Navy retains responsibility for engineering changes that affect safety or operational capability
- Subject to these conditions, Boeing designs and executes a support program for the parts in the program

- The Navy monitors realized allowable costs to implement cost-related portions of the contract
- The Navy monitors use standard logistics metrics to measure performance of the whole program
- The Navy setting inventory levels at the retail level, on shore, and on carriers. Boeing fills the remainder of the pipeline

This path was not easy or obvious from the beginning. Having a core Navy and Boeing team allowed the forging of key working relationships that allowed the team to overcome the myriad of barriers.

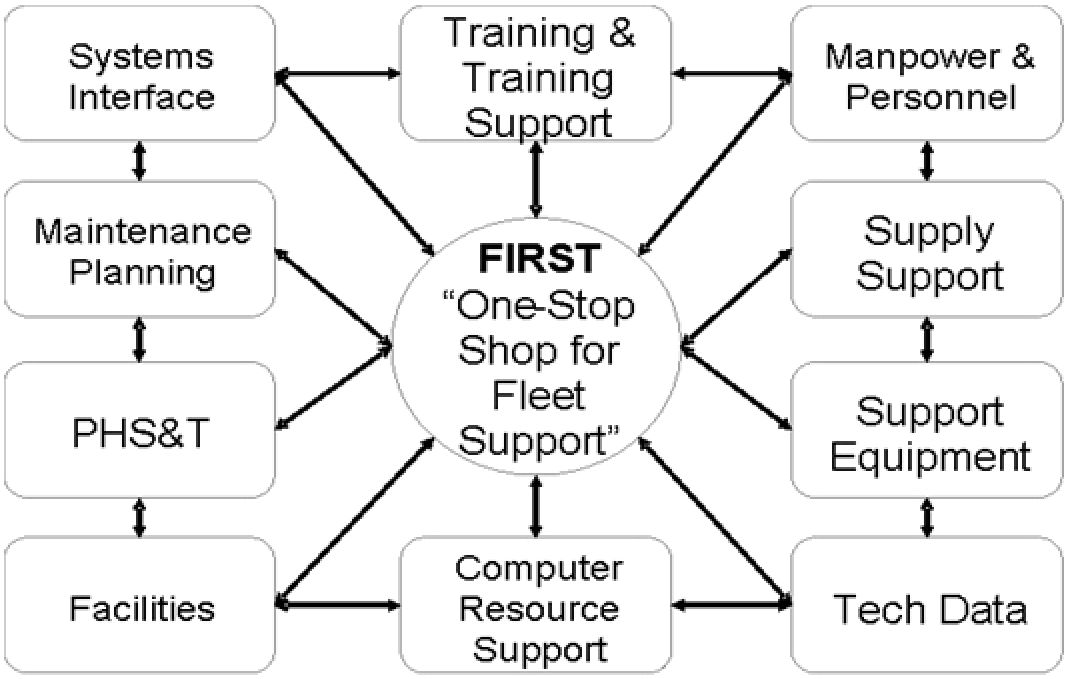
2-2). Indicate the duration of the project. Note if the project was a pilot that is being rolled out. Note if the project is ongoing/still in progress:

The FIRST program is designed to be in existence for 30 plus years covering the life cycle of the Super Hornet. This particular award write-up focuses on calendar year 2003 emphasizing the recent monumental supply chain achievements by NAVAIR, NAVICP and Boeing.

In May 2003, NAVAIR awarded a one year contract (with two option years) to Boeing for performance of the integrated logistics support elements beyond spares and repairs management. In October 2002, NAVICP exercised the third year of their FIRST spares and repairs contract. The combination of these two FIRST contracts allows the Navy and Boeing to provide total logistics support to the warfighter for Super Hornet unique components. FIRST is one of the Navy's only existing performance based logistics contracts to specifically support all ten integrated logistics support elements:

- Maintenance Planning
- Technical Data
- Computer Resource Support
- Supply Support
- Support Equipment
- Packaging, Handling, Storage, and Transportation (PHS&T)
- Facilities
- Manpower/Personnel
- Training (informal/on-the-job maintenance)
- Design Interface

FIRST Integrated Logistics Elements Model



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2-3). Describe, in details, the process used to complete the initiative:

The NAVICP FIRST contract uses a requirements-type, performance-based contract that gives Boeing "program management responsibility and authority to meet the program performance requirements defined" in the contract. During the two-year base period and the first option year, a cost-plus-incentive-fee (CPIF) contract with award fee applies. During the following two one-year option years, a fixed-price-incentive (FPI) contract with award fee applies. This shift reflects a broader strategy in the program, which anticipates that, as data on actual support performance and cost accumulate and the design of the support plan for the Super Hornet continues to mature, the contract should shift to terms with higher-powered incentives. Reliable data were not available to set hard targets at the beginning. Better data should allow Boeing and the Navy to negotiate progressively firmer and more demanding targets as the program continues.

As the contract continues through all option year's data collected over the course of the contract will support ever-more performance-based terms. The second year of a follow-on contract is expected to rely entirely on fixed prices. Price levels were not included in the initial contract. Rather, Boeing proposed ceilings during the first year of the contract that set maximum levels for future negotiations. These included FPI ceilings and

maximum fees. Equitable adjustment, up or down, is negotiated routinely each year, based on changes in basic planning documents and other factors such as significant changes in flight hours. Thresholds and levels of performance metrics govern the government's decision to execute options and to award a fee.

Baseline levels of metrics at the beginning of the contract exceeded the levels that would have been expected from organic provision of the same services. The contract seeks to cut costs by 20 percent while maintaining performance "at or better than" performance targets.

The contract includes two award fees per year, whose levels are determined at the government's discretion on the basis of finely defined criteria that reflect changing priorities through the course of the contract. The contract identifies maximum levels of the fee in each period. A detailed award fee plan explains how the Navy decides what portion of this maximum to award to Boeing. The award fee for the first period, for example, addresses supply chain management efforts before the contract began (15% weight), information services connectivity achieved (35%), fleet support (25%), and supportability (25%). The award fee plan defines each of these precisely, often in terms of several subfactors with further weights, and the evaluation criteria that the Navy uses to rate each subfactor. Starting with the second period, the award fee becomes more standardized in structure, but shifts emphasis from more subjective factors to more objective and qualitative criteria.

Over time, greater cost savings will be achieved which will lead to further improvements in service levels. Boeing is incentivized to keep looking for places where beneficial changes might be made proactively, which limits the number of "emergency" replacements. Boeing is responsible for the performance of major suppliers and tends to incentivize them to cut costs as well. The contract provides a detailed plan for managing unexpected surges in demand against the program. It allows equitable adjustment for a large enough surge in annual flying hours and allows relief from performance targets if a surge is sustained.
The contract defines operating arrangements for the FIRST program in close detail. For example, among many other things, it defines:

- The terms, on which Boeing and the Navy coordinate their actions to propose, approve and fund engineering changes that affect military operations, safety, and supportability.
- The terms on which Boeing and the Navy can buy relevant parts from one another.
- The data that the Navy must provide to Boeing on its aircraft delivery schedule, flying-hour profile, carrier deployment, site activation schedule, weapon system demand, operational factors, training base utilization factors and other data that Boeing requests, and what happens when these data change. It also defines the specific Boeing data that the Navy can access.
- Specific data rights and responsibilities of the Navy and Boeing, including protection of proprietary data.

- Links between this program and other support programs, like the integrated logistics support (ILS) program and the sustainment section of the multiyear aircraft production contract, relevant to the Super Hornet. The contract lays out consequences when such programs do not remain aligned with one another.

Performance monitors for each key area of the contract look at details and interface with the fleet. The performance monitors are always members of standing FIRST Integrated Process Teams. Quality assurance occurs through routine monitoring of metrics in specified in the award fee plan and generated in the Navy's standard logistics information management systems. Deep transparency of data systems between Boeing and Navy makes this possible. DCMA approved the performance monitoring and auditing processes and then allowed those processes to function, without requiring further detailed oversight of each individual support action. While FIRST gives the Navy the right to do inspections, DCMA has certified Boeing's quality control system as compliant with requirements, so Boeing is allowed to self-monitor. Boeing and key subcontractors had previously been certified to various applicable ISO 9000 standards, so this sort of process-based certification came naturally to them.

The NAVAIR FIRST contract also uses a requirements-type, performance-based contract that gives Boeing additional "program management responsibility and authority to meet the program performance requirements defined" in the contract. During the one-year base period, a fixed-price contract with award fee applies. This contract utilizes almost all of the contract monitoring and administration processes established with NAVICP FIRST contract. The award-fee metrics however, are more qualitative due to the type of services provided on this contract.

2-4). Identify significant challenges encountered, the process for resolution, and the solutions. Identify any best practices employed or developed:

Past efforts in DoD to apply what is in effect a fleet performance warranty have faltered as a result of the uncertainty that inevitably accompanies the operation of high-performance defense systems that have not yet been matured and the finger pointing that inevitably follows disagreements about who is responsible for specific failures.

The FIRST Team is an exceptional mix of talented individuals that function as a joint integrated product team. The primary team is composed of the Naval Air Systems Command (NAVAIR), the Naval Inventory Control Point (NAVICP), The Boeing Company, the Naval Aviation Depot North Island, the Defense Logistics Agency (DLA), and the Assistant Deputy Under Secretary of Defense (Logistics Plans and Programs). To succeed, this team had to develop a close teaming arrangement that precisely defined roles and responsibilities, provided for the timely and accurate exchange of information, and reinforced mutual trust. Mutual trust can be sustained only by cumulative success from the perspective of both the buyer and seller and a lot of effort taken on both sides to feed the relationship itself. During the design period, Boeing and the Navy maintained a stable core negotiating group. This allowed senior personnel on both sides to establish

mutual trust based on personal relationships. Professional facilitators supported the effort throughout to encourage effective, focused communication.

Boeing and the Navy attempted this arrangement only after integrated process teams (IPTs), staffed by Navy and Boeing personnel, spent four years defining all aspects of the partnership. Boeing and the Navy had learned how to use such "joint" teams in test programs to eliminate redundant test actions and speed development. The FIRST teams painstakingly mapped each process relevant to the Super Hornet support and identified who was responsible for each action, decision, information flow, and financial flow in each process. This effort in itself clarified the support process in ways that would have improved support for the aircraft even in the absence of this agreement. But the agreement could not succeed from both Boeing's and the Navy's perspective without this effort.

Boeing's responsibility for the performance of Navy depots also posed a serious challenge in the agreement. Boeing's control over performance at Navy depots is limited. DoD efforts to assign total system support responsibility (TSSR) to a contractor when a government organization retains important support responsibilities typically use performance metrics that hold the contractor harmless for failures of the government support activity. For example, a contractor's component repair cycle time could be adjusted if the government failed to deliver subcomponents from its supply system as agreed; the contractor's measured cycle would not include time awaiting parts from the government supply system.

FIRST addresses this challenge by establishing formal public-private partnerships with Government Organizations. These partnerships have the ability to hold each other accountable through the use of Commercial Services Agreements that lay out specific tasks expected of each partner. FIRST allows Boeing to provide end-to-end supply chain services to the Navy by obtaining specific logistics services from the center-of-excellence be it a commercial or organic activity. For example, Boeing established Commercial Teaming Agreements with all three Naval Aviation Depots for repair of Super Hornet components. These agreements allowed the Naval Aviation Depots to utilize their skilled artisans to repair components for the fleet and allowed Boeing to take complete responsibility for the remainder of the logistics chain.

The FIRST Team's open communication and strong working relationships enabled them to utilize a wide variety of acquisition reform initiatives to achieve the impossible ensuring that the best possible product is delivered to the dedicated men and women flying the Super Hornet into harm's way. The FIRST Team dared to develop an affordable approach for meeting the support requirements of the Super Hornet without sacrificing combat capability. Their integration efforts have allowed the supply chain to perform as a single enterprise.

2-5). Indicate the metrics used to measure progress and success:

FIRST uses standard logistics metrics, collected in the Navy's standard, operational logistics information management system, to measure performance. These metrics include detailed, objective, quantitative measures of supply response time, time on backorder, and stock effectiveness on aircraft carriers. It supplements these with subjective measures of fleet support and supportability, measures that will fall in importance as better data on the objective measures accumulate. These measures directly capture outcomes relevant to the performance of the fleet logistics system. Failure to meet the targets set for these metrics directly affects the award fee awarded twice a year; it can affect the Navy's willingness to exercise options in the contract. The contract adjusts fee rather than price itself because it is primarily cost-based. As it migrates to a fixed-price regime, performance will presumably affect price directly.

FIRST provides the Navy with unparalleled levels of support for the Super Hornet. Aircraft availability rates during recent deployments have been at or near 100 percent and mission capable for operational squadrons and training squadrons have seen mission capable rates over 90 percent. Since contract award (May 2001), Boeing has processed over 16,895 requisitions and filled 98.6% with an average age of open requisitions of 25 days on high priority requisitions. NAVICP had passed 233 backorder requisitions to Boeing upon contract award. Of those, the FIRST Team was able to fill 92 of these backorders within 90 days as a direct result of Boeing's ability to effectively coordinate borrow/payback of production assets. Boeing has subsequently filled the remainder of the original 233 backordered requisitions.

Preparation for Navy deployments proceeded ahead of customer expectations. Range and depth of repairable and consumable stock material for aircraft carrier deployments have consistently exceeded required levels, even though deployment schedules had been accelerated by several months. Along with meeting the requirements of today, FIRST is aggressively pursuing opportunities to improve the supportability attributes of the Super Hornet. Several initiatives requiring $13.2 million dollars from the program's Supportability Cost Reduction Initiative (SCRI) Fund have been developed and are projected to produce over $356 million dollars in Total Ownership Cost avoidance for the program. In addition to providing the Navy material support, FIRST also offers, through the Hornet Support Network (HSN), a multi-site, multi-disciplined team chartered with providing the customer on-site support. Wherever, whenever, the HSN has provided answers to customer questions and concerns ranging in locations from shore based operating sites to aircraft carrier deployments at sea. The Boeing FIRST Team in cooperation with the Navy has developed and implemented a support solution that will meet the Chief of Naval Operation readiness goals for the Super Hornet at an affordable cost.

2-6). Document and quantify cost and performance benefits, including the project's return on investment and changes in the value of one or more of the SCOR Level 1 metrics (not all metrics must be captured or reported):

FIRST targets all five SCOR Level 1 metrics. As detailed below, FIRST specifically focuses on:

- **Supply Chain Delivery Reliability:** Delivery performance and fill rate metrics
- **Supply Chain Responsiveness:** Velocity and order fulfillment lead time metrics
- **Supply Chain Flexibility:** Agility and supply chain response time metrics
- **Supply Chain Costs:** Value added productivity and total supply chain management costs metrics
- **Supply Chain Asset Management Efficiency:** Asset turns and inventory days of supply metrics

FIRST has improved Super Hornet support by reducing depot turn-around-time and awaiting parts by 41% and 64% respectively, and increasing supply availability from 62% for the Hornet to 85% for the Super Hornet. During the most recent performance cycle, Supply Response Time was 88%, Average Fill Rate was 97.25%, and less than 2% of requisitions received since May 2001 remained outstanding. A few of the contractual metrics continuously reviewed by the government are:

Supply Response Time: Assesses FIRST's ability to fill requisitions in a timely manner.

- 48 Hour Repairable Material: Goal > 85%; Performance 72.6%
- 48 Hour Consumable Material: Goal > 85%; Performance 88.5%
- 120/360 Hour Consumable and Repairable Material: Goal > 85%; Performance 92%

Time on Backorder: Assesses FIRST's ability to fill requisitions not filled on first pass.

- Highest Priority Requisitions: Goal < 45 Average Days; Performance 14 Average Days
- Medium Priority Requisitions: Goal < 75 Average Days; Performance 49 Average Days

Average Age of Unfilled Backorders: Assesses FIRST's ability to fill outstanding Hornet requisitions.

- Highest Priority Requisitions: Goal < 90 Average Days; Performance 25 Average Days
- Medium Priority Requisitions: Goal < 120 Average Days; Performance 75 Average Days

Carrier Stockage Effectiveness: Assesses FIRST's ability to fill pre-determined aviation allowance lists.

- USS LINCOLN: Goal > 90% Range/ >90% Depth; Performance 99% Range/ 99% Depth
- USS NIMITZ: Goal > 90% Range/ >90% Depth; Performance 99% Range/ 99% Depth
- USS STENNIS: Goal > 90% Range/ >90% Depth; Performance 98% Range/ 97% Depth (in process)

- USS KITTY HAWK: Goal > 90% Range/ >90% Depth; Performance 99% Range/ 99% Depth (in process)

Fleet Support Responsiveness: Assesses FIRST's ability to respond to warfighter's needs.

- Technical Publication Deficiency Reports (CAT I): Goal 5 Days; Performance Two Days
- Request for Assistance: Goal 90%; Performance 100%
- Request for Information: Goal 90%; Performance 94%

Although FIRST has not conducted a formal return on investment analysis, Boeing estimates that FIRST is projected to provide cost avoidances and saving of approximately $1.2 billion over the Super Hornet's life cycle. These cost avoidances and savings are:

	Cost Reduction Enablers $1.5B (30 yrs LCC)	**Savings To Date ($M)**	**Projected LCC Savings (FY04-31) ($M)**
Supply Chain Management	Repair Turnaround Time (RTAT)	$65.1	$200.9
	Spares Acquisition Integrated with Production (SAIP)	$18.8	$48.3
	Warranty Repair	$2.4	$4.4
	Supplier Partnerships	$1.0	$10.0
In-Service Engineering	ECP Velocity	$0.6	$1.3
	SCRIs	$0.2	$328 ➔ $750*
	Obsolescence Mgmt	$0.9	$40.1
	Performance Based Contracting	$12.6	$33.2
	Integrated Logistics Support (ILS)	$13.0	$22.0
	Hornet Support Network (HSN)	$1.6	$49.7
	Total	**$116.2**	**$737.9 ➔ $1.2B**
*	$750M is projected savings/avoidance from total SCRI investments		

The Navy and Boeing believe that there are numerous intangible benefits from FIRST that are difficult if not impossible to quantify. These benefits have been labeled as "priceless" and are provided below:

- "Quality of Life" improvements for warfighters and other Government personnel that force the organic supply chain to be responsive.
- Reduced Retail Allowances
- Reduced Retail Space Footprint
- Reduced Cannibalization Actions
- Higher Mission Capability Rates

- High Aircraft Allowance Lists fill Percentage
- Less Non-Mission Capable Supply and Maintenance Components
- Total Asset Visibility (TAV)
- Reduced Order and Shipping Times (approx 5% savings)
- Responsive supply system (so reliable you can plan by it)
- Reduced transactions
- Synergy with production line schedules
- Borrow/payback supporting Fleet spares/repairs
- Production engineering
- Supplier liaison activities
- Streamlined repair process with OEMs
- Future use of Boeing company funds
- Boeing investment in Supply Chain Management tools, supplier partnerships, and Information Technology infrastructure
- Maximizes customer/supplier/production/support integration
- Rapid fleet response
- Integrated Logistics Support, Hornet Support Network, Support Equipment
- Reduced cycle times
- Embodies partnership between NAVICP, NAVAIR, NADEP Boeing, Hornet Industry Team, Fleet
- Adds flexibility to all support processes through acquisition, development, and deployment
- Opportunity to implement further efficiencies throughout fleet support team
- Potential for additional CSA's with NATEC, Fleet Support Team, and Lakehurst
- Schedule risk mitigation
- Depot capability
- Reduced Beyond Capability returns to OEM's
- Support Integration with PBL
- Sustainment Cost Reduction Initiatives for Technical Publications reduce ambiguity groups
- Navy administration savings from FIRST Class 1 Sustainment Cost Reduction Initiatives
- Further opportunity for savings by managing to stock effectiveness vice supply response time

2-7). Outline how the success of this effort supports the organizational objectives described in Section 1, Item 3:

The overall objective of FIRST is to meet and exceed fleet readiness expectations and requirements while reducing Total Ownership Cost through efficient and pro-active supply chain management, reliability and supportability improvements, integrated information systems development and deployment, and ground-breaking performance based logistics.

Exceed Fleet Readiness Expectations
As demonstrated by the SCOR metrics and the operational results of VFA-115 during Operation Iraqi Freedom, FIRST is living up to the promise. The Fleet is extremely satisfied with FIRST and is requesting that we expand the PBL to cover the F/A-18A-Ds.

Reduction in Total Ownership Costs
As demonstrated by cost avoidance/savings table, Boeing estimates that they will save the Navy $1.2 billion over the Super Hornets life cycle. These savings/avoidances have been traced to supply chain management efficiencies and reliability improvements. The combination of significant life cycle cost reduction and the performance improvements mentioned above allow FIRST to be an unquestionable success.

SECTION 3: KNOWLEDGE TRANSFER

3-1). Describe the efforts to share lessons from this effort with other internal organizations:

The FIRST team is committed to sharing and communicating information about performance based logistics and Super Hornet support. Team members continually participate in performance based logistics conferences and focus groups. The Team spent numerous hours providing details on FIRST to the RAND Corporation to assist them in writing a report for OSD entitled, "Recent, Large Service Acquisitions in the Department of Defense: Lessons for the Office of the Secretary of Defense." Some of the information from that report was used for this award submission.

FIRST has garnered interest from other Naval Aviation Programs, Joint Program Offices, and Foreign Military Services. Boeing has worked with many of these groups to assist them in developing similar contracts. The F-15 Program Office has asked for meeting to discuss our Teaming process. The team has scheduled a mid-February meeting with the C-17 Program Office to discuss experiences and lessons learned. Some of the topics on the agenda are:

- Cost per flying hour contracting
- Availability and effectiveness metric calculation and use
- Funding performance based logistics contracts via multi-year appropriations
- Boeing as an Inventory Control Point
- Compliance to Core Law and depot partnerships
- Partnerships with major OEMs and small businesses
- Measuring "Value" or return on investment from performance based logistic contracts

3-2). Explain how the initiative can be transferred to other organizations, and specify the likely candidates for transference:

The opportunity to submit award packages, such as these are an excellent opportunity to transfer the success of FIRST to other organizations. The more that DoD Leadership and

industry knows about FIRST and other large, system level PBLs, the better for the warfighter and the taxpayer.

The Office of Secretary of Defense has done an outstanding job crafting policy that encourages all DoD organizations to utilize PBLs as their sustainment default solution. More has to be done in the funding, business case analysis, and auditing areas but progress on the policy front has been fantastic.

Boeing is working with multiple DoD organizations and Foreign Governments to develop future performance based logistics support solutions. Establishing robust PBLs for legacy weapons systems is much more difficult but may offer performance improvements to the warfighter and significant savings to the taxpayer. Some of the organizations that Boeing is discussing PBLs with are:

- H-46 Chinook, United States Marine Corps
- AV-8B Harrier, United States Marine Corps
- V-22 Osprey, United States Marine Corps
- RAH-64 Apache, United States Army
- CF-18 Hornet, Canadian Air Force
- F/A-18 Hornet, Royal Australian Air Force
- F/A-18 Hornet, Royal Malaysian Air Force
- F-15 , United States Air Force
- F-15, Korean Air Force
- F-15T, Singapore Air Force
- C-130 AMP, United States Air Force

CONCLUSION:

FIRST has been an unmitigated success for the warfighter and taxpayer. The **2003** efforts by NAVAIR, NAVICP and Boeing are unmatched in terms of dedication, teamwork and results. This committed team transformed the Super Hornet Supply Chain by utilizing commercial best practices to radically increase reliability, flexibility and responsiveness.

There can be no doubt that FIRST significantly improved the end-to-end management of products and services, from origination of the raw material at the supplier's supplier, through the functional areas and processes of NAVAIR and NAVICP, to the end user or the warfighter. The original FIRST Tenants have been achieved and will continue to be the team's focus in the future:

- Supply Chain Management,
- Government/Industry Teaming,
- Supportability Improvements,
- Integrated Information Systems,
- Performance Based Contracting and,

- Consolidated Logistics Support

The commitment to expand FIRST to the entire Hornet community is no doubt complex, challenging and somewhat risky. Naval Aviation, carrier operations and the warfighter will be the unmitigated winners. The contribution FIRST made to the supply chain body of knowledge in 2003 is enormous.